



INDICATIVE PROJECT SUMMARIES

Water Conservation Grant Program

FFY 2004-2008

**Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs
Ian A. Bowles, Secretary**

**Massachusetts Department of Environmental Protection
Laurie Burt, Commissioner**

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Glenn S. Haas, Acting Assistant Commissioner**

**Division of Municipal Services
Steven J. McCurdy, Director**

2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL
PROTECTION**

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**Prepared by:
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**Massachusetts Department of Environmental Protection
627 Main Street, 2nd floor
Worcester, MA 01608**

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<http://www.mass.gov/dep/water/grants.htm>**

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INTRODUCTION

This report presents Indicative Project Summaries of Water Conservation Grant Program projects funded during federal fiscal years 2004-2007. From 2004 to 2006 this program was entitled the Water Loss Prevention Grant Program.

These programs were developed to support the 1996 Safe Drinking Water Act Amendments, and the Massachusetts Water Resources Commission's and Massachusetts Department of Environmental Protection's watershed management policies and water conservation initiatives, as well as the Massachusetts Water Policy developed through the Executive Office of Energy and Environmental Affairs. Funding is provided from the Drinking Water State Revolving Fund Set-Asides.

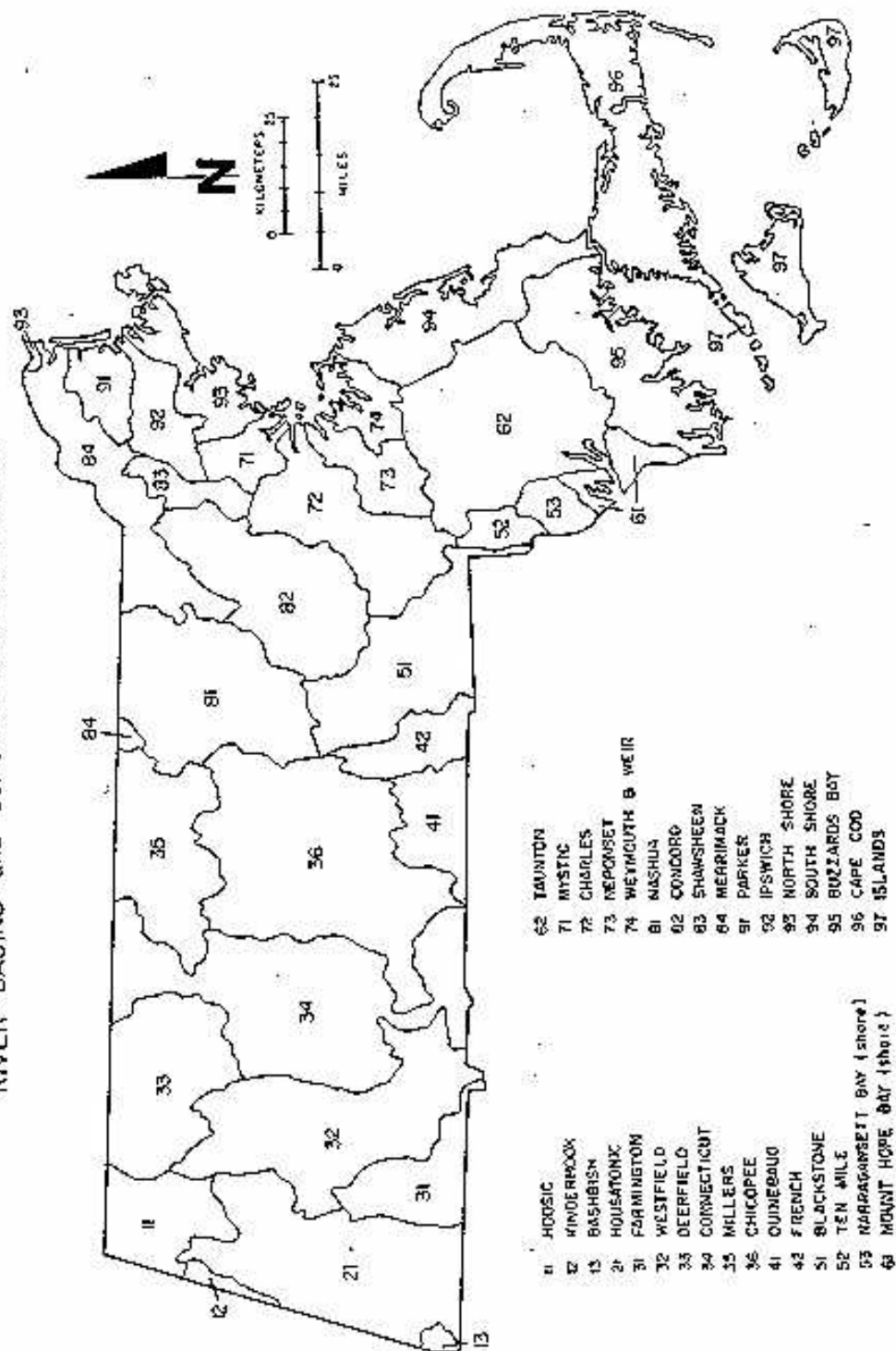
Water Conservation Grant Program

The Water Conservation/Water Loss Prevention Grant Program assists public water systems in addressing drinking water supply and distribution system water losses and supports projects that promote the implementation of drinking water conservation programs. Priority is given to those public water systems having withdrawal points located within a medium or highly stressed basin and as per the Water Resources Commission (stressed basins are identified as having: the volume of streamflow significantly reduced; a significant environmental concern that would benefit from a reduction in demand or; having an identified issue where the public water system cannot meet demand).

During the 2004-2006 granting rounds, the Water Loss Prevention Program supported water audits, leak detection programs, public water conservation outreach programs, and other projects that focus on drinking water loss identification, resolution, and prevention.

During the 2007 granting round, the Water Conservation Program provided matching funds to assist public water systems and municipalities in addressing drinking water losses through local water conservation programs, water audits, leak detection surveys, some diagnostic equipment and training, and rebates for low flow fixtures and retrofit kits.

COMMONWEALTH of MASSACHUSETTS RIVER BASINS and COASTAL DRAINAGE AREAS



**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 04-01/WLP**

PROJECT TITLE: Millis Water Loss Prevention Grant Project

INVESTIGATOR: Town of Millis

LOCATION: Charles River Basin

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Town of Millis drinking water works and distribution system. The Town has sources of supply that are located in a stressed subwatershed. The Town's goal is to reduce unaccounted for water loss to 10 percent or less.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection survey for 42 miles of water mains and appurtenances of the water distribution system. Establish a priority system to implement leak repairs;
3. Review and evaluate maintenance, calibration and reading practices existing master production meters. Sample those commercial meters no yet sampled with data-logging devices to determine whether or not the meter needs to be downsized or replaced with a different type of meter. Estimate water losses associated with the commercial meters and recommend additional steps for meter analysis and replacement;
4. Prepare quarterly reports and other deliverables to the Department; and
5. Prepare a draft and a final project report.

COST: \$42,766

FUNDING: \$31,600 by the U.S. Environmental Protection Agency
\$11,166 by the Town of Millis

DURATION: 2005-2006

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 04-02/WLP**

PROJECT TITLE: Walpole Water Loss Prevention Grant Project

INVESTIGATOR: Town of Walpole

LOCATION: Charles River and Boston Harbor Basins

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Town's drinking water works and distribution system. The Town has sources of supply that are located stressed subwatersheds. The Town proposes to reduce its unaccounted for water loss to 10 percent or less in order to satisfy its Water Management Act Program permit requirements.

The Town will quantify the water savings from project related activities in both gallons per year and an approximate dollar value.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection survey for the 149 miles of water mains and appurtenances of the water distribution system network. Establish a priority system to implement leak repairs;
3. Evaluate Water Meters (serves as project match). Review and evaluate information on meters, water consumption by meter size and use category. Test meters by isolating and comparing to a certified and calibrated meter. Recommend additional steps for meter analysis and evaluation. Retrofit or replace approximately 10 meters with new transmitter units;
4. Prepare quarterly reports and other deliverables to the Department; and
5. Prepare a draft and a final project report.

COST: \$54,595

FUNDING: \$40,000 by the U.S. Environmental Protection Agency
\$14,595 by the Town of Walpole

DURATION: 2005-2006

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 04-03/WLP**

PROJECT TITLE: West Boylston Water Loss Prevention Grant Project

INVESTIGATOR: West Boylston Water District

LOCATION: Nashua River Basin

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the West Boylston Water District's drinking water works and distribution system, and reduction of the amount of water withdrawal of their sources. Reducing the amount of water withdrawn from their sources will assist in alleviating stress on the river basin.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection program; purchase leak detection equipment; and conduct a comprehensive field survey for 53 miles of water mains and appurtenances of the water distribution system network. Establish a priority system to implement leak repairs;
3. Replace approximately 480 service meters in fiscal year 2006 (serves as project match);
4. Water Conservation Program: Distribute Low Impact Development concepts to agricultural, commercial, industrial, and residential consumers. Conduct at least two public meetings to provide residents and high-volume water users with an overview of conservation program. Conduct at least two meetings with West Boylston High School staff and administrators. Purchase and distribute selected water conservation pamphlets from the to encourage residential, commercial and industrial water conservation within the District. Broadcast local cable announcement on water conservation;
5. Prepare quarterly reports and other deliverables to the Department; and
6. Prepare a draft and a final project report.

COST: \$49,050

FUNDING: \$30,050 by the U.S. Environmental Protection Agency
\$19,000 by the West Boylston Water District

DURATION: 2005-2006

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 04-04/WLP**

PROJECT TITLE: Halifax Water Loss Prevention Grant Project

INVESTIGATOR: Town of Halifax

LOCATION: Taunton River Watershed

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Town of Halifax Water Department's drinking water works and distribution system. The Town proposes to reduce its unaccounted for water loss to 10 percent or less in order to satisfy Water Management Act Program permit requirements.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection survey for the 60 miles of water mains and appurtenances of the water distribution system network that may include source of supply transmission lines;
3. Develop and implement a water conservation education and outreach program. Water conservation plans should include water conservation measures, universal metering, water accounting and loss control, costing and pricing, information and education, pressure management, landscape efficiency, reuse and recycling, water-use regulation, and integrated resource management. Conservation efforts can include water use reduction plans, working with public schools, and distributing conservation outreach and education information;
4. Prepare quarterly reports and other deliverables to the Department; and
5. Prepare a draft and a final project report.

COST: \$49,000

FUNDING: \$39,000 by the U.S. Environmental Protection Agency
\$10,000 by the Town of Halifax

DURATION: 2005-2006

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 04-05/WLP**

PROJECT TITLE: Barre Water Loss Prevention Grant Project

INVESTIGATOR: Town of Barre

LOCATION: Chicopee River Basin

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Town of Barre's drinking water works and distribution system. The Town has sources of supply that are located in stressed subwatersheds within the Chicopee River Watershed. The Town proposes to reduce its unaccounted for water loss to 10 percent or less.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection program or enhance an existing program; provide training; purchase leak detection equipment; and conduct a comprehensive field survey for 23 miles of water mains and appurtenances of the water distribution system network;
3. Replace approximately 225 service meters. This task will serve as the project match share;
4. Develop and implement a water conservation education and outreach program. Water conservation plans should include but is not limited to water conservation measures, universal metering, water accounting and loss control, costing and pricing, information and education, pressure management, landscape efficiency, reuse and recycling, water-use regulation, and integrated resource management;
5. Prepare quarterly reports and other deliverables to the Department; and
6. Prepare a draft and a final project report.

COST: \$49,000

FUNDING: \$39,000 by the U.S. Environmental Protection Agency
\$10,000 by the Town of Barre

DURATION: 2005-2006

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 04-06/WLP**

PROJECT TITLE: Avon Water Loss Prevention Grant Project

INVESTIGATOR: Town of Avon

LOCATION: Taunton River Basin

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Town of Avon's drinking water works and distribution system. The Town has sources of supply that are located in a stressed subwatershed within the Taunton River Watershed. The Town proposes to reduce its unaccounted for water loss to 10 percent or less in order to satisfy Water Management Act Program permit requirements.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection survey of the 42.5 miles of water mains and appurtenances of the water distribution system network;
3. Implement a rate structure that would generate revenue required to cover operating and maintenance expense, debt service payment and projected future capital outlay. Rate structure should distribute revenue requirement on an equitable basis to customers. Water-use charges should be based on increasing block rates;
4. Prepare quarterly reports and other deliverables to the Department; and
5. Prepare a draft and a final project report.

COST: \$31,420

FUNDING: \$23,000 by the U.S. Environmental Protection Agency
\$8,420 by the Town of Avon

DURATION: 2005-2006

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 04-07/WLP**

PROJECT TITLE: Worcester Water Loss Prevention Grant Project

INVESTIGATOR: City of Worcester

LOCATION: Blackstone and Nashua River Basins

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the City of Worcester's drinking water works and distribution system. The City has sources of supply that are located within the Blackstone and Nashua River Watersheds. The City is attempting to reduce its unaccounted for water loss to 10 percent or less.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a leak detection survey for 300 miles of water mains and appurtenances of the water distribution system network. Establish a priority system to implement leak repairs;
3. Review records on the existing master production meters to evaluate maintenance, calibration, and reading practices. Master meters will be calibrated in conjunction with the leak detection work survey. Test approximately 100 larger commercial meters, 3-inches and larger. Estimate water losses associated with the commercial meters and recommend additional steps for meter analysis and replacement;
4. Prepare quarterly reports and other deliverables to the Department; and
5. Prepare a draft and a final project report.

COST: \$18,500

FUNDING: \$14,000 by the U.S. Environmental Protection Agency
\$4,500 by the City of Worcester

DURATION: 2005-2006

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 04-08/WLP**

PROJECT TITLE: Department of Correction Water Loss Prevention Grant Project

INVESTIGATOR: Massachusetts Department of Correction

LOCATION: Charles, Nashua, South Coastal, and Taunton Basins

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Massachusetts Department of Correction drinking water works and distribution systems that serve MCI-Bridgewater, MCI-Norfolk, MCI-Shirley, and MCI-Plymouth.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss) at each of the four project sites: MCI-Bridgewater, MCI-Norfolk, MCI-Shirley, and MCI-Plymouth;
2. Conduct comprehensive leak detection surveys, including all water mains, transmission lines, and appurtenances, of the water systems at each of the four project sites;
3. Review production meters, discharge meters, and building meters in use at MCI-Bridgewater, MCI-Norfolk, MCI-Shirley, and MCI-Plymouth. Review records on the existing master production and discharge meters to evaluate maintenance, calibration, and reading practices for MCI-Bridgewater, MCI-Norfolk, MCI-Shirley, and MCI-Plymouth. The accuracy of the meters will be field verified by measuring actual flows in the distribution pipe leaving the pump stations compared with the meter readings. Estimate water losses associated with the meters and recommend additional steps for meter analysis and replacement;
4. Replace up to a total of 300 priority faucets, 100 showerheads, and 100 electronic toilet controls to reduce water consumption. This task will be conducted as part of an in-kind match contribution;
5. Prepare quarterly reports and other deliverables to the Department; and
6. Prepare a draft and a final project report.

COST: \$42,000

FUNDING: \$31,000 by the U.S. Environmental Protection Agency
\$11,000 by the Massachusetts Department of Correction

DURATION: 2005-2006

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 04-09/WLP**

PROJECT TITLE: Milford Water Loss Prevention Grant Project

INVESTIGATOR: Milford Water Company

LOCATION: Charles River Basin

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Milford Water Company's drinking water works and distribution system. The Company's goal is to reduce its unaccounted for water loss to 10 percent or less.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection survey for approximately 102 miles of water mains and appurtenances of the water distribution system network. Establish a priority system to implement leak repairs. Repair identified leaks in accordance with the current Water Management Act Permit requirements;
3. Review records on the existing master production meters to evaluate maintenance, calibration, and reading practices. The accuracy of the meters will be field verified by measuring actual flows in the distribution pipe leaving the pump stations compared with the meter readings. This will be performed as part of the zoning work under Task 1 and will indicate whether the meters require servicing. Sample those commercial meters not yet sampled with data-logging devices to determine whether or not the meter needs to be downsized or replaced with a different type of meter. Estimate water losses associated with the commercial meters and recommend additional steps for meter analysis and replacement;
4. Prepare quarterly reports and other deliverables to the Department; and
5. Prepare a draft and a final project report.

COST: \$24,300

FUNDING: \$12,300 by the U.S. Environmental Protection Agency
\$12,000 by the Milford Water Company

DURATION: 2005-2006

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 04-10/WLP**

PROJECT TITLE: Lynnfield Center Water Loss Prevention Grant Project

INVESTIGATOR: Lynnfield Center Water District

LOCATION: Ipswich and North Coastal Basins

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Lynnfield Center Water District drinking water works and distribution system. The District proposes to reduce its unaccounted for water loss to 10 percent or less.

Specific tasks include:

1. Purchase leak detection equipment; leak correlator, interface module, and six sensing correlator 'pods';
2. Conduct a comprehensive leak detection survey for 47 miles of water mains and appurtenances of the water distribution system network. Establish a priority system to implement leak repairs. Repair identified leaks within a year of discovery as per the MassDEP 2001 Guidance and Policies for Public Water Supplies;
3. Prepare quarterly reports and other deliverables to the Department; and
4. Prepare a draft and a final project report.

COST: \$30,000

FUNDING: \$24,000 by the U.S. Environmental Protection Agency
\$6,000 by the Lynnfield Center Water District

DURATION: 2005-2006

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 04-11/WLP**

PROJECT TITLE: Wilmington Water Loss Prevention Grant Project

INVESTIGATOR: Town of Wilmington

LOCATION: Ipswich River Basin

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Town of Wilmington's drinking water works and distribution system. The Town proposes to reduce its unaccounted for water loss to 10 percent or less in order to satisfy Water Management Act Program permit requirements.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a leak detection survey for 125 miles of water mains and appurtenances of the water distribution system network. Establish a priority system to implement leak repairs;
3. Evaluate maintenance, calibration and, reading practices for the two master production meters. The accuracy of meters will be field verified by measuring actual flows in the distribution pipe leaving the pump stations compared with the meter readings. Sample those commercial meters not yet sampled with data-logging devices to determine whether or not the meter needs to be downsized or replaced with a different type of meter. Estimate water losses associated with commercial meters and recommend additional steps for meter analysis and replacement;
4. Conduct individual water audits for at least the ten largest industrial water users for the previous calendar year. Visits will include detailed analysis of the water use process, identifying points of loss, and recommendations for water conservation and savings techniques. This task is presented as match;
5. Prepare quarterly reports and other deliverables to the Department; and
6. Prepare a draft and a final project report.

COST: \$49,450

FUNDING: \$23,050 by the U.S. Environmental Protection Agency
\$26,400 by the Town of Wilmington

DURATION: 2005-2006

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 04-12/WLP**

PROJECT TITLE: Ashland and Hopkinton Water Loss Prevention Grant Project

INVESTIGATOR: Town of Ashland

LOCATION: Blackstone, Charles, and Sudbury River Basins

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Towns of Ashland's and Hopkinton's drinking water works and distribution systems. The Towns of Ashland and Hopkinton commit to the repair of identified leaks in accordance with their respective current Water Management Act Permit requirements.

Specific tasks include:

1. Conduct a water audit for the Town of Ashland to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a leak detection survey for 68 miles of water mains and appurtenances of the Town of Ashland's water distribution system network. Establish a priority system to implement leak repairs. Repair identified leaks in accordance with the current Water Management Act Permit requirements;
3. Conduct a leak detection survey for 80 miles of water mains and appurtenances of the Town of Hopkinton's water distribution system network. Establish a priority system to implement leak repairs. Repair identified leaks in accordance with the current Water Management Act Permit requirements;
4. Prepare quarterly reports and other deliverables to the Department; and
5. Prepare a draft and a final project report.

COST: \$38,000

FUNDING: \$22,000 by the U.S. Environmental Protection Agency
\$16,000 by the Town of Ashland

DURATION: 2005-2006

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 04-13/WLP**

PROJECT TITLE: West Springfield Water Loss Prevention Grant Project

INVESTIGATOR: Town of West Springfield

LOCATION: Connecticut River Basin

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Town of West Springfield's drinking water works and distribution system. The Town will quantify the water savings from project related activities in both gallons per year and an approximate dollar value.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a leak detection survey for 50 miles of water mains and appurtenances of the water distribution system network. Establish a priority system to implement leak repairs;
3. Develop a Geographic Information System map and data layers of portion of the Town's drinking water supply infrastructure lacking adequate maps;
4. Develop and implement a water conservation education and outreach program. Water conservation public education and outreach programs should include bill stuffers or mailers, public service announcements, providing educational materials and presentations to schools, and speakers for community groups;
5. Prepare quarterly reports and other deliverables to the Department; and
6. Prepare a draft and a final project report.

COST: \$39,000

FUNDING: \$31,000 by the U.S. Environmental Protection Agency
\$8,000 by the Town of West Springfield

DURATION: 2005-2007

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 04-14/WLP**

PROJECT TITLE: Holyoke Water Loss Prevention Grant Project

INVESTIGATOR: City of Holyoke

LOCATION: Connecticut River Basin

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the City of Holyoke's drinking water works and distribution system. The City of Holyoke commits to the repair of identified leaks.

Specific tasks include:

1. Conduct a leak detection program; and conduct a comprehensive field survey for 200 miles of water mains and appurtenances of the water distribution system network that may include source of supply transmission lines. Establish a priority system to implement leak repairs;
2. Prepare quarterly reports and other deliverables to the Department; and
3. Prepare a draft and a final project report.

COST: \$50,000

FUNDING: \$40,000 by the U.S. Environmental Protection Agency
\$10,000 by the City of Holyoke

DURATION: 2005-2006

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 05-01/WLP**

PROJECT TITLE: Easton Water Loss Prevention Grant Project

INVESTIGATOR: Town of Easton

LOCATION: Taunton River Basin

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Town of Easton drinking water works and distribution system. The Town has sources of supply that are located in a stressed subwatershed. The Town's goal is to reduce unaccounted for water loss to 10 percent or less.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection survey of water mains and appurtenances of the water distribution system. Establish a priority system to implement leak repairs, and repair leaks within a year of discovery;
3. Conduct Water Conservation Seminar for Town employees and other water departments within the Canoe River sub-basin of the Taunton River Basin;
4. Conduct a Public Outreach program including the purchase and distribution of a water conservation pamphlet and book cover, and an "In-home" water audit program;
5. Prepare quarterly reports and other deliverables for submittal to the Department; and
6. Prepare a draft and a final project report.

COST: \$51,360

FUNDING: \$31,000 by the U.S. Environmental Protection Agency
\$20,360 by the Town of Easton

DURATION: 2006-2007

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 05-03/WLP**

PROJECT TITLE: Hamilton Water Loss Prevention Grant Project

INVESTIGATOR: Town of Hamilton

LOCATION: Ipswich River Basin

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Town of Hamilton's drinking water works and distribution system, and reduce the amount of water withdrawal of their sources.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Review past 3-years of backup calculations for water produced (pumped), metered water sold, and unaccounted for water UAW, etc.;
3. Conduct leak detection survey. Measure water system demands and leakage, compile and review data collection equipment, and evaluate the suitability of the equipment, and past data to allow for future trending and calculation of system demand;
4. Evaluate compiled data and prepare summary report of analysis and findings;
5. Present findings of water audit and make recommendations to reduce water use and loss in system;
6. Review existing distribution network maps and comment on suitability for use in leakage detection program;
7. Develop program to create district-metering areas in water system to measure leakage;
8. Analyze leakage measurement data and prepare summary report of analysis and findings;
9. Repair the leaks identified and quantify results;
10. Prepare quarterly reports and other deliverables for submittal to the Department; and
11. Prepare a draft and a final project report.

COST: \$43,000

FUNDING: \$31,000 by the U.S. Environmental Protection Agency
\$12,000 by the Town of Hamilton

DURATION: 2006-2007

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 05-04/WLP**

PROJECT TITLE: Grafton Water Loss Prevention Grant Project
INVESTIGATOR: Grafton Water District
LOCATION: Blackstone River Watershed

DESCRIPTION: This project will consist of a water audit, leak detection survey, and implementation of a water conservation education and outreach program. The Grafton Water District commits to the repair of identified leaks in accordance with the current Water Management Act Permit requirements. The District will quantify the water savings from project related activities in both gallons per year and an approximate dollar value.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Review past 3-years of backup calculations for water produced (pumped), metered water sold, and unaccounted for water UAW, etc.;
3. Review usage records to target areas for water conservation and public outreach efforts;
4. Conduct workshops to promote and educate the largest water users about water conservation;
5. Implement new conservation rate structure to encourage conservation;
6. Promote conservation message and methods, implement public outreach program;
7. Present findings of water audit and make recommendations to reduce water use and loss in system;
8. Repair the leaks identified and quantify results;
9. Prepare quarterly progress reports and other deliverables for submittal to the Department; and
10. Prepare a draft and a final project report.

COST: \$42,000
FUNDING: \$31,000 by the U.S. Environmental Protection Agency
\$11,000 by the Grafton Water District
DURATION: 2006-2007

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 05-05/WLP**

PROJECT TITLE: Upton Water Loss Prevention Grant Project

INVESTIGATOR: Town of Upton

LOCATION: Blackstone River Basin

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Town of Upton's drinking water works and distribution system. The Town has sources of supply that are located in stressed subwatersheds within the Blackstone River Watershed. The Town proposes to reduce unaccounted for water loss to 10 percent or less.

Specific tasks include:

1. Conduct a comprehensive leak detection survey for the 30 miles of water mains and appurtenances of the water distribution system network that may include source of supply transmission lines;
2. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
3. Purchase and install up to 100 replacement service meters;
4. Purchase and distribute water conservation pamphlets;
5. Prepare quarterly reports and other deliverables for submittal to the Department; and
6. Prepare a draft and a final project report.

COST: \$37,000

FUNDING: \$28,000 by the U.S. Environmental Protection Agency
\$9,000 by the Town of Upton

DURATION: 2006-2007

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 05-06/WLP**

PROJECT TITLE: Georgetown Water Loss Prevention Grant Project

INVESTIGATOR: Town of Georgetown

LOCATION: Parker River Basin

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Town of Georgetown's drinking water system. The Town proposes to reduce unaccounted for water loss to 10 percent or less in order to satisfy Water Management Act Program permit requirements.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Review past 3-years of backup calculations for water produced (pumped), metered water sold, and unaccounted for water UAW, etc.;
3. Conduct a comprehensive leak detection survey. Measure water system demands and leakage, compile and review data collection equipment, and evaluate the suitability of the equipment, and past data to allow for future trending and calculation of system demand;
4. Evaluate compiled data from Task 3 and prepare summary report of analysis and findings;
5. Present findings of water audit and make recommendations to reduce water use and loss in system;
6. Review existing distribution network maps and comment on suitability for use in leakage detection program;
7. Develop program to create district-metering areas in water system to measure leakage;
8. Analyze leakage measurement data and prepare summary report of analysis and findings;
9. Repair the leaks identified and quantify results;
10. Prepare quarterly reports and other deliverables for submittal to the Department; and
11. Prepare a draft and a final project report.

COST: \$43,000

FUNDING: \$31,000 by the U.S. Environmental Protection Agency
\$12,000 by the Town of Georgetown

DURATION: 2006-2007

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 05-07/WLP**

PROJECT TITLE: North Attleborough Water Loss Prevention Grant Project

INVESTIGATOR: Town of North Attleborough

LOCATION: Blackstone and Ten Mile River Basins

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Town of North Attleborough's drinking water works and distribution system. The Town has sources of supply that are located within the Blackstone and Ten Mile River Watersheds. The Town is attempting to reduce unaccounted for water loss to 10 percent or less.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Develop and implement a Water Conservation Plan;
3. Purchase and install 100 remote read meter adapters for service meters;
4. Prepare quarterly reports and other deliverables for submittal to the Department; and
5. Prepare a draft and a final project report.

COST: \$47,000

FUNDING: \$37,000 by the U.S. Environmental Protection Agency
\$10,000 by the Town of North Attleborough

DURATION: 2006-2007

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 05-08/WLP**

PROJECT TITLE: Southbridge Water Loss Prevention Grant Project

INVESTIGATOR: Town of Southbridge

LOCATION: Quinebaug River Basin

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Town of Southbridge drinking water works and distribution systems. The Town is attempting to reduce unaccounted for water loss to 10 percent or less.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection survey for 75 miles of water mains and appurtenances of the water distribution system network. Establish a priority system to implement leak repairs. Repair identified leaks within a year of discovery as per the MassDEP 2001 Guidance and Policies for Public Water Supplies.
3. Prepare quarterly reports and other deliverables for submittal to the Department; and
4. Prepare a draft and a final project report.

COST: \$36,465

FUNDING: \$25,000 by the U.S. Environmental Protection Agency
\$11,465 by the Town of Southbridge

DURATION: 2006-2007

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 05-09/WLP**

PROJECT TITLE: Gloucester Water Loss Prevention Grant Project

INVESTIGATOR: City of Gloucester

LOCATION: North Coastal Basin

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the City of Gloucester's drinking water works and distribution system. The City's goal is to reduce unaccounted for water loss to 10 percent or less.

Specific tasks include:

1. Conduct a comprehensive leak detection survey of all City water mains and appurtenances of the water distribution system network that may include source of supply transmission lines. Establish a priority system to implement leak repairs. Repair identified leaks within a year of discovery as per the MassDEP 2001 Guidance and Policies for Public Water Supplies;
2. Implement a public outreach program. Produce and distribute newsletters and posters to promote water conservation through a simple and consistent message and advertise the changes to the billing rate to encourage conservation as described, raise awareness of seasonal restrictions locally and regionally, raise awareness of the connection between water bill and the amount of water consumed;
3. Purchase and install two new distribution valves to provide more accurate accounting of the volume of finished water delivered. This task is presented as an in-kind match.
4. Prepare quarterly reports and other deliverables for submittal to the Department; and
5. Prepare a draft and a final project report.

COST: \$44,000

FUNDING: \$32,000 by the U.S. Environmental Protection Agency
\$12,000 by the City of Gloucester

DURATION: 2006-2007

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 05-10/WLP**

PROJECT TITLE: Rockport Water Loss Prevention Grant Project

INVESTIGATOR: Town of Rockport

LOCATION: North Coastal Basin

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Town of Rockport's drinking water works and distribution system. The Town proposes to reduce its unaccounted for water loss to 10 percent or less in order to satisfy Water Management Act Program permit requirements.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Review past 3-years of calculations for water produced, metered, sold, unaccounted for (before known adjustments), etc.;
3. Review public sewer service area and past sewer flows for additional source for comparison. Review findings of past Inflow/Infiltration studies if available to calculate or estimate of sanitary flow;
4. Conduct a comprehensive leak detection survey. Establish a priority system and repair leaks within a year of discovery;
5. Evaluate compiled data and prepare summary report of analysis and findings;
6. Present findings of water audit and make recommendations to reduce water use and loss in system;
7. Review existing distribution network maps and comment on suitability for use in leakage detection program;
8. Develop program to create district-metering areas in water system to measure leakage;
9. Analyze leakage measurement Data and Prepare summary report of analysis and findings;
10. Repair identified leaks and calculate savings;
11. Prepare quarterly reports and other deliverables for submittal to the Department; and
12. Prepare a draft and a final project report.

COST: \$50,000

FUNDING: \$36,000 by the U.S. Environmental Protection Agency
\$14,000 by the Town of Rockport

DURATION: 2006-2007

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 05-11/WLP**

PROJECT TITLE: Mattapoisett Water Loss Prevention Grant Project

INVESTIGATOR: Town of Mattapoisett

LOCATION: Buzzards Bay Basin

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Town of Mattapoisett's drinking water works and distribution system. The Town proposes to reduce its unaccounted for water loss to 10 percent or less in order to satisfy Water Management Act Program permit requirements.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a leak detection survey for 55 miles of water mains and appurtenances of the water distribution system network. Establish a priority system to implement leak repairs; identified leaks will be repaired within 6 months of detection.
3. Develop and implement a Water Conservation Plan to reduce the volume of water lost in the system by increasing community awareness and implementing water saving practices throughout the Town;
4. Prepare quarterly reports and other deliverables for submittal to the Department; and
5. Prepare a draft and final project report.

COST: \$47,000

FUNDING: \$37,000 by the U.S. Environmental Protection Agency
\$10,000 by the Town of Mattapoisett

DURATION: 2006-2007

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 05-12/WLP**

PROJECT TITLE: Ipswich Water Loss Prevention Grant Project

INVESTIGATOR: Town of Ipswich

LOCATION: Ipswich and Parker River Basins

DESCRIPTION: This project will identify and reduce unaccounted for water loss from the Town of Ipswich's drinking water works and distribution systems. Although the Town lies across two watersheds it withdraws its drinking water only from within the Parker River Watershed. The Town of Ipswich commits to the repair of identified leaks in accordance with their respective current Water Management Act Permit requirements.

Specific tasks include:

1. Conduct a water audit for the Town of Ipswich to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection survey of water mains and appurtenances of the water distribution system network. Establish a priority system to implement leak repairs, develop district metering areas, analyze leakage measurement data, develop high priority target areas in an effort to improve effectiveness of leak detection program, access and tap into mains to install metering equipment. Repair leaks and breaks identified;
3. Prepare quarterly reports and other deliverables for submittal to the Department; and
4. Prepare a draft and a final project report.

COST: \$46,000

FUNDING: \$35,000 by the U.S. Environmental Protection Agency
\$11,000 by the Town of Ipswich

DURATION: 2006-2007

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 06-01/WLP**

PROJECT TITLE: Millis Water Loss Prevention Grant Project

INVESTIGATOR: Town of Millis

LOCATION: Charles River Basin

DESCRIPTION: The goals of this project are to encourage water conservation, and identify and reduce unaccounted for water loss from the Town of Millis drinking water works and distribution system. The Grantee's goal is to reduce its unaccounted for water loss to 10 percent or less (unaccounted volume reported as 26% in 2005).

Specific tasks include:

1. Implement a Water Conservation Education in local public schools, the Millis Garden Club, and large commercial and industrial water users.
2. Implement a Landscape Irrigation Water Conservation Demonstration Project at the town hall or a similar high profile site.
3. Review and calibrate master production meters. Document the process, how meters are tested, calibrated, and/or replaced, make, model, type, and number of particular meters addressed, and requisite reduction in unaccounted for water.
4. Conduct a comprehensive leak detection survey for 42 miles of water mains and appurtenances of the water distribution system.
5. Repair leaks will be repaired in accordance with the terms of the Grantee's current Water Management Act Permit requirements.
6. Prepare quarterly reports and other deliverables to the Department; and
7. Prepare a draft and a final project report.

COST: \$37,500

FUNDING: \$30,000 by the U.S. Environmental Protection Agency
\$7,500 by the Town of Millis

DURATION: 2007-2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 06-02/WLP**

PROJECT TITLE: Groton Water Loss Prevention Grant Project

INVESTIGATOR: Town of Groton

LOCATION: Merrimack River Basin

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Groton ("the Grantee") drinking water works and distribution system. The Town's goal is to reduce its unaccounted for water loss to 10 percent or less.

Specific tasks include:

1. Purchase leak detection equipment; leak correlator and leak detection loggers - to be shared with Westford, West Groton, Pepperell, and Littleton. Provide for training specific to the leak correlator and leak detection loggers purchased.
2. Conduct a comprehensive leak detection survey for 43 miles of water mains and appurtenances of the water distribution system.
3. The Grantee will establish a priority system to implement leak repairs. Leaks will be repaired in accordance with the terms of the Grantee's current Water Management Act Permit requirements.
4. Conduct Water Conservation Workshops to Educate the Largest Water Users and Promote a Water Conservation Message. Implement one-hour conservation training workshops at each institutional customer location and provide information on how they can reduce their use (total of three).
5. Replace 2-inch and Larger Meters. Purchase and install up to eleven 2-inch and larger replacement water meters.
6. Conduct rebate program. Provide reimbursement for properly documented purchase and installation of water savings fixtures, appliances, and other devices. This task is presented as a match only.
7. Prepare quarterly reports and other deliverables to the Department; and
8. Prepare a draft and a final project report.

COST: \$41,946

FUNDING: \$35,000 by the U.S. Environmental Protection Agency
\$6,946 by the Town of Groton

DURATION: 2007-2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 06-03/WLP**

PROJECT TITLE: Dedham-Westwood Water Loss Prevention Grant Project

INVESTIGATOR: Dedham-Westwood Water District

LOCATION: Charles and Boston Harbor River Basins

DESCRIPTION: This project will promote water conservation and identify and reduce unaccounted for water loss from the Dedham-Westwood Water District ("the Grantee") drinking water works and distribution system. The Grantee's goal is to reduce its unaccounted for water percentage (UAW) loss to 10 percent or less (UAW was reported as 19% in 2005).

Specific tasks include:

1. Conduct a comprehensive leak detection survey for 195 miles of water mains and appurtenances of the water distribution system. Use a correlator to detect, record, analyze, and pinpoint the sound created by underground water leakage. Upon the identification of a leak, a flow rate can be estimated. Upon completion of the survey, the Grantee shall provide a report summarizing the locations of the identified leaks, the type of leak (i.e., main, hydrant, service connection, etc.), estimated flow rates for all leaks, etc.;
2. The Grantee will establish a priority system to implement leak repairs. Leaks will be repaired in accordance with the terms of the Grantee's current Water Management Act Permit requirements. Leakage repairs will be documented with leak repair reports including estimates of leakage rates based on visual observation once infrastructure is exposed.
3. Prepare quarterly reports and other deliverables to the Department; and
4. Prepare a draft and a final project report.

COST: \$46,500

FUNDING: \$21,500 by the U.S. Environmental Protection Agency
\$25,000 by the Dedham-Westwood Water District

DURATION: 2007-2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 06-04/WLP**

PROJECT TITLE: Plymouth Water Loss Prevention Grant Project

INVESTIGATOR: Town of Plymouth

LOCATION: Buzzards Bay and South Coastal Watersheds

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Plymouth drinking water works and distribution system. The Grantee's goals are to comply with water conservation standards by reducing their unaccounted for water loss of 16.4% to 10% or less, and by reducing their demand, currently 79 residential gallons per capita day (rgpcd) to 65 rgpcd.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection survey for 210 miles of water mains and appurtenances of the water distribution system.
3. Repair leaks in accordance with the terms of the Grantee's current Water Management Act Permit requirements.
4. Implement a Water Conservation Education and Outreach program. The goal of the water conservation plan is to reduce the volume of water lost in the system by increasing community awareness and implementing water saving practices throughout the Town;
5. Calibrate up to 50 service meters over ten-years old. Meter evaluation, testing, replacement, repair, or calibration work conducted as match must include documentation to support this match. Summarize the process as well as the requisite savings from accurate billing statements as the result of calibrated, repaired, and/or replaced meters.
6. Prepare quarterly reports and other deliverables to the Department; and
7. Prepare a draft and a final project report.

COST: \$49,500

FUNDING: \$39,000 by the U.S. Environmental Protection Agency
\$10,500 by the Town of Plymouth

DURATION: 2007-2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 06-05WLP**

PROJECT TITLE: Bridgewater Water Loss Prevention Grant Project

INVESTIGATOR: Town of Bridgewater

LOCATION: Taunton River Basin

DESCRIPTION: This project will implement a water audit, purchase leak detection equipment, conduct a leak detection survey, leak repair, inventory and evaluate water-using facilities in the municipal buildings, and update and implement the Grantee's Water Conservation Plan.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Purchase leak detection equipment - to be shared with the Towns of Halifax and East Bridgewater. Train appropriate staff on proper use of newly purchased leak detection equipment.
3. Conduct a comprehensive leak detection survey for 200 miles of water mains and appurtenances of the water distribution system.
4. The Grantee will establish a priority system to implement leak repairs. Leaks will be repaired in accordance with the terms of the Grantee's current Water Management Act Permit requirements.
5. Inventory and evaluate water-using facilities in the Grantee's municipal buildings. Repair, replace, or retrofit as appropriate.
6. Update and implement the Grantee's Water Conservation Plan; the implementation to include a water conservation education and outreach program engaging area schools. The Water Conservation Plan should include but not be limited to water conservation measures, universal metering, water accounting and loss control, costing and pricing, information and education, pressure management, landscape efficiency, reuse and recycling, water-use regulation, and integrated resource management.
7. Prepare quarterly reports and other deliverables to the Department; and
8. Prepare a draft and a final project report.

COST: \$47,000

FUNDING: \$36,500 by the U.S. Environmental Protection Agency
\$10,500 by the Town of Bridgewater

DURATION: 2007-2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 06-06/WLP**

PROJECT TITLE: Medfield Water Loss Prevention Grant Project

INVESTIGATOR: Town of Medfield

LOCATION: Charles and Boston Harbor River Basins

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Medfield drinking water works and distribution system. The Town's goals are to comply with water conservation standards by reducing their demand, currently 81 residential gallons per capita day (rgpcd) to 65 rgpcd.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection survey for 80 miles of water mains and appurtenances of the water distribution system.
3. Repair leaks in accordance with the terms of the Grantee's current Water Management Act Permit requirements.
4. Purchase and install up to 500 new replacement water meters. Document the meter evaluation, testing, replacement, repair, or calibration work conducted. Summarize the process and the requisite savings from accurate billing statements as the result of calibrated, repaired, and/or replaced meters;
5. Implement a water conservation education and outreach program to reduce the volume of water lost in the system by increasing community awareness and implementing water saving practices throughout the Town.
6. Prepare quarterly reports and other deliverables to the Department; and
7. Prepare a draft and a final project report.

COST: \$50,000

FUNDING: \$40,000 by the U.S. Environmental Protection Agency
\$10,000 by the Town of Medfield

DURATION: 2007-2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 06-07/WLP**

PROJECT TITLE: Fairhaven Water Loss Prevention Grant Project

INVESTIGATOR: Town of Fairhaven

LOCATION: Buzzards Bay Watershed

DESCRIPTION: This project will promote water conservation and identify and reduce unaccounted for water loss from the Town of Fairhaven drinking water works and distribution system. The Town's goal is to continue water loss reduction efforts and remain in compliance with their Water Management Act standards of 65 rgpcd, an unaccounted for water percentage (UAW) of 10% or less, and a seasonal water cap. This project will implement a water audit, a leak detection survey, leak repair, and accuracy testing for up to 100 service and large commercial meters.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection survey for 100 miles of water mains and appurtenances of the water distribution system.
3. Repair leaks in accordance with the Grantee's current Water Management Act Permit requirements.
4. Test up to 100 service and large commercial meters over ten years old. Document the meter inspection process and how the decision is made whether to replace or rehab an existing meter, how meters are tested, calibrated, and/or replaced. Document the make, model, type (i.e., 4-inch meter), and number of particular meters addressed. Summarize the requisite savings from accurate billing statements as the result of calibrated, repaired, and/or replaced meters.
5. Prepare quarterly reports and other deliverables for submittal to the Department; and
6. Prepare a draft and a final project report.

COST: \$33,500

FUNDING: \$26,500 by the U.S. Environmental Protection Agency
\$7,000 by the Town of Fairhaven

DURATION: 2007-2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 06-08/WLP**

PROJECT TITLE: Marion Water Loss Prevention Grant Project

INVESTIGATOR: Town of Marion

LOCATION: Buzzards Bay Watershed

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Marion drinking water works and distribution system. The Town's goal is to reduce the percentage of unaccounted for water and reducing demand from 75 rgpcd to 65 rgpcd, especially in the summer months.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection survey for 90 miles of water mains and appurtenances of the water distribution system.
3. Repair leaks. Leaks will be repaired in accordance with the terms of the Grantee's current Water Management Act Permit requirements.
4. Implement a water conservation education and outreach program. A water conservation plans should include but is not limited to water conservation measures, universal metering, water accounting and loss control, costing and pricing, information and education, pressure management, landscape efficiency, reuse and recycling, water-use regulation, and integrated resource management;
5. Test up to 50 large meters over ten years old. Summarize the process and the requisite savings from accurate billing statements as the result of calibrated, repaired, and/or replaced meters. This task is presented as a match only.
6. Prepare quarterly reports and other deliverables to the Department; and,
7. Prepare a draft and a final project report.

COST: \$45,000

FUNDING: \$35,000 by the U.S. Environmental Protection Agency
\$10,000 by the Town of Marion

DURATION: 2007-2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 06-09/WLP**

PROJECT TITLE: Ayer Water Loss Prevention Grant Project

INVESTIGATOR: Town of Ayer

LOCATION: Nashua and Merrimack River Basins

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Ayer drinking water works and distribution system. The Grantee's goal is to continue their water loss reduction efforts and thus remain in compliance with their Water Management Act standards of 65 rgpcd and an unaccounted for water percentage (UAW) of 10% or less.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Implement a water conservation education and outreach program. Water conservation plans should include but is not limited to water conservation measures, universal metering, water accounting and loss control, costing and pricing, information and education, pressure management, landscape efficiency, reuse and recycling, water-use regulation, and integrated resource management;
3. Purchase and install up to 150 service meters as part of the ongoing meter replacement program. Document the meter inspection process and how the decision is made whether to replace or rehab an existing meter, how meters are tested, calibrated, and/or replaced, and summarize the requisite savings from accurate billing statements as the result of calibrated, repaired, and/or replaced meters;
4. Prepare quarterly reports and other deliverables to the Department; and
5. Prepare a draft and a final project report.

COST: \$40,000

FUNDING: \$31,000 by the U.S. Environmental Protection Agency
\$9,000 by the Town of Ayer

DURATION: 2007-2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 06-10/WLP**

PROJECT TITLE: Lancaster Water Loss Prevention Grant Project

INVESTIGATOR: Town of Lancaster

LOCATION: Nashua River Basin

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Lancaster drinking water works and distribution system. The Town's goals are to comply with water conservation standards by reducing their unaccounted for water loss of 18% to 10% or less, and demand to 65 residential gallons per capita day (rgpcd).

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection survey for 45 miles of water mains and appurtenances of the water distribution system.
3. Repair leaks will be repaired in accordance with their prioritized status: leaks of 3 gallons per minute or more shall be repaired as soon as possible and no later than within twelve months of detection. Leaks of less than 3 gpm at hydrants and appurtenances shall be repaired promptly and no later than within twelve months of detection. Leaks of less than 3 gpm in local roadways, freeway, arterial, or collector roadways shall be repaired when related work on the roadway is being performed.
4. Purchase and install up to fifteen replacement water meters;
5. Prepare quarterly reports and other deliverables to the Department; and
6. Prepare a draft and a final project report.

COST: \$25,170

FUNDING: \$19,920 by the U.S. Environmental Protection Agency
\$5,250 by the Town of Lancaster

DURATION: 2007-2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 06-11/WLP**

PROJECT TITLE: Plainville Water Loss Prevention Grant Project

INVESTIGATOR: Town of Plainville

LOCATION: Taunton and Ten-Mile River Basins

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Plainville drinking water works and distribution system. The Grantee's goal is to reduce per capita water usage below 65 residential gallons per capita day (rgpcd) to remain in compliance with their Water Management Act Standards.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection survey for 110 miles of water mains and appurtenances of the water distribution system.
3. Repair leaks in accordance with the Town's Water Management Act Permit requirements.
4. Test all large in-line meters including master meters that have test ports and isolation valves that will enable the testing. Meter evaluation, testing, replacement, repair, or calibration work conducted as match must include documentation to support this match. Summarize the requisite savings from accurate billing statements as the result of calibrated, repaired, and/or replaced meters.
5. Prepare quarterly reports and other deliverables to the Department; and
6. Prepare a draft and a final project report.

COST: \$35,100

FUNDING: \$25,000 by the U.S. Environmental Protection Agency
\$10,100 by the Town of Plainville

DURATION: 2007-2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 06-12/WLP**

PROJECT TITLE: Holliston Water Loss Prevention Grant Project

INVESTIGATOR: Town of Holliston

LOCATION: Charles River Basin

DESCRIPTION: This project will promote water conservation and identify and reduce unaccounted for water loss from the Town of Holliston (“the Grantee”) drinking water works and distribution system. The Grantee’s goal is to reduce its unaccounted for water loss to 10 percent or less (currently estimated as 18%).

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection survey for 114 miles of water mains and appurtenances of the water distribution system.
3. The Grantee will establish a priority system to implement repairs. Leaks will be repaired in accordance with the terms of the Grantee’s current Water Management Act Permit requirements. Leakage repairs will be documented with leak repair reports including estimates of leakage rates based on visual observation once infrastructure is exposed. After leaks are repaired, the Grantee will re-survey the repair sites to confirm that no other leaks remain.
4. Prepare quarterly reports and other deliverables to the Department; and
5. Prepare a draft and a final project report.

COST: \$38,750

FUNDING: \$31,000 by the U.S. Environmental Protection Agency
\$7,750 by the Town of Holliston

DURATION: 2007-2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 06-13/WLP**

PROJECT TITLE: Paxton Water Loss Prevention Grant Project

INVESTIGATOR: Town of Paxton

LOCATION: Blackstone and Nashua River Basins

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Paxton drinking water works and distribution system. The Town purchases water from Worcester whose sources are located in the medium-stressed Nashua River Basin and the low-stressed portion of the Blackstone River Basin. The Grantee's goal is to reduce its unaccounted for water loss to 10 percent or less (unaccounted for water percentage was reported as 15% in 2005).

Specific tasks include:

1. Conduct a comprehensive leak detection survey for 40 miles of water mains and appurtenances of the water distribution system.
2. Repair leaks in accordance with their prioritized status: leaks of 3 gallons per minute or more shall be repaired as soon as possible and no later than within twelve months of detection. Leaks of less than 3 gpm at hydrants and appurtenances shall be repaired promptly and no later than within twelve months of detection. Leaks of less than 3 gpm in local roadways, freeway, arterial, or collector roadways shall be repaired when related work on the roadway is being performed. Leakage repairs will be performed in conformance with industry standards and will be documented with leak repair reports including estimates of leakage rates based on visual observation once infrastructure is exposed. After leaks are repaired, the Grantee will re-survey the repair sites to confirm that no other leaks remain
3. Prepare quarterly reports and other deliverables to the Department;
and
4. Prepare a draft and a final project report.

COST: \$6,700

FUNDING: \$5,200 by the U.S. Environmental Protection Agency
\$1,500 by the Town of Paxton

DURATION: 2007-2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER LOSS PREVENTION PROJECT 06-14/WLP**

PROJECT TITLE: Hatfield Water Loss Prevention Grant Project

INVESTIGATOR: Town of Hatfield

LOCATION: Connecticut River Basin

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Hatfield drinking water works and distribution system. The Town's goal is to reduce their unaccounted for water loss to 10 percent or less.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss);
2. Conduct a comprehensive leak detection survey for 37.5 miles of water mains and appurtenances of the water distribution system.
3. Repair leaks in accordance with their prioritized status: leaks of 3 gallons per minute or more shall be repaired as soon as possible and no later than within twelve months of detection. Leaks of less than 3 gpm at hydrants and appurtenances shall be repaired promptly and no later than within twelve months. Leaks of less than 3 gpm in local roadways, freeway, arterial, or collector roadways shall be repaired when related work on the roadway is being performed. After repair re-survey the repair sites to confirm that no other leaks remain.
4. Implement a conservation education program in the elementary school.
5. Evaluate water meters for the five largest water users for appropriateness of type, sizing, and configuration relative to usage, etc. Estimate water losses associated with the large water user meters and recommend additional steps for meter analysis and replacement. Document meter evaluation, testing, replacement, repair, or calibration work. Summarize the requisite savings from accurate billing statements as the result of calibrated, repaired, and/or replaced meters.
6. Prepare quarterly reports and other deliverables to the Department; and
7. Prepare a draft and a final project report.

COST: \$34,300

FUNDING: \$27,300 by the U.S. Environmental Protection Agency
\$7,000 by the Town of Hatfield

DURATION: 2007-2008

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-01/WCG**

PROJECT TITLE: Hadley Water Conservation Grant Project

INVESTIGATOR: Town of Hadley

LOCATION: Connecticut River Basin

DESCRIPTION: The goals are to promote water conservation and reduce unaccounted for water loss from the Town of Hadley (“the Grantee”) drinking water works and distribution system. The Grantee’s goal is to continue their water loss reduction efforts and remain in compliance with their Water Management Act standards of 65 residential gallons per capita day and an unaccounted for water percentage of 15% or less.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss).
2. Conduct a comprehensive leak detection survey for 65 miles of water mains and appurtenances of the water distribution system.
3. Repair leaks in accordance with the terms of the Grantee’s current Water Management Act Permit requirements.
4. Purchase and install up to 1,000 replacement service meters. Describe the meter inspection and decision making process and summarize requisite savings from accurate billing statements as the result of calibrated, repaired, and/or replaced meters.
5. Implement a conservation education program in the elementary school. The curriculum will focus on the water cycle and the effects of human activities on the cycle. The program will encourage the students and their families to look at the way that they use water and look for ways to reduce their consumption. A water conservation web page will be linked to the town’s web site.
6. Prepare quarterly reports and other deliverables to the Department; and
7. Prepare a draft and a final project report.

COST: \$64,200

FUNDING: \$34,600 by the U.S. Environmental Protection Agency
\$29,600 by the Town of Hadley

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-02/WCG**

PROJECT TITLE: Wareham Water Conservation Grant Project

INVESTIGATOR: Wareham Fire District

LOCATION: Buzzards Bay Watershed

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Wareham Fire District drinking water works and distribution system. The Grantee's goal is to continue their water loss reduction efforts and reduce their unaccounted for water loss from approximately 18% to 10 percent or less.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss).
2. Conduct a comprehensive leak detection survey for 160 miles of water mains and appurtenances of the water distribution system.
3. Repair leaks in accordance with the terms of the Grantee's current Water Management Act Permit requirements.
4. Implement a conservation education program in five local elementary schools. The curriculum will focus on the water cycle and the effects of human activities on the cycle. The program will introduce simple water conservation techniques and provide educational materials for the students and their families. The program will encourage the students and their families to look at the way that they use water and look for ways to reduce their consumption. A water conservation web page will be linked to the District's web site.
5. Prepare quarterly reports and other deliverables to the Department; and
6. Prepare a draft and a final project report.

COST: \$53,700

FUNDING: \$40,000 by the U.S. Environmental Protection Agency
\$13,700 by the Wareham Fire District

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-03/WCG**

PROJECT TITLE: MWRA Water Conservation Grant Project

INVESTIGATOR: Massachusetts Water Resources Authority

LOCATION: MWRA Service Watersheds

DESCRIPTION: The goals of this project are to promote drinking water conservation and reduce water usage within the member communities of the Massachusetts Water Resources Authority. The goals and specific work elements of each grant program are provided below.

Specific tasks include:

1. Purchase of Educational Materials for the Water Conservation Program. Print 200,000 MassDEP approved water conservation brochures. Purchase 6,000 low flow water conservation kits. Purchase/print informational flyers and forms for low flow toilet rebates.
2. Distribute approved informational flyers, letters, and emails to local communities, watershed groups, housing authorities, environmental groups, retailers, local newspapers, etc.
3. Distribute Water Conservation Materials and kits and outreach/education brochures (see Task 2) to local communities, watershed associations, etc. based on response from Task 2.
4. Process Rebate Requests. Rebate will require a copy of the sales receipt and photographs to document installation. A \$100 rebate will be provided for purchase and installation per toilet or toilet flush valves for tankless toilets that replace less efficient toilets.
5. Select Pilot Water Audit Communities. MWRA member communities with unaccounted for water rates greater than 10% will be given priority to apply for a pilot water audit.
6. Conduct two to three water audits to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss).
7. Prepare quarterly reports and other deliverables to the Department; and
8. Prepare a draft and a final project report.

COST: \$110,000

FUNDING: \$80,000 by the U.S. Environmental Protection Agency
\$30,000 by the Massachusetts Water Resources Authority

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-04/WCG**

PROJECT TITLE: Concord Water Conservation Grant Project

INVESTIGATOR: Town of Concord

LOCATION: SuAsCo Watershed

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Concord (“the Grantee”) drinking water works and distribution system. The Grantee’s goal is to continue their water loss reduction efforts by enhancing an existing rebate program for low-flow toilets and other appliances. Thus, the Town would remain in compliance with their Water Management Act standards of 65 residential gallons per capita day and an unaccounted for water percentage of 15% or less.

Specific tasks include:

1. Provide rebates for low-flow toilets purchased and installed.
2. Provide a \$100 rebate to 40 eligible water customers for installing CEE approved clothes washers.
3. Advertise the rebate program via 7,000 direct mail brochures, newspaper articles, advertisements, Internet, and at public events.
4. Upgrade 12 older toilets in Town buildings that do not meet today’s 1.6 gallons per flush standard. Quantify the savings as the result of the new fixtures. At the location of each installation affix a small sign or plaque to educate and promote the use of such water savings devices.
5. Conduct a comprehensive leak detection survey for 60 miles of water mains and appurtenances of the water distribution system.
6. Repair leaks in accordance with the terms of the Grantee’s current Water Management Act Permit requirements.
7. Prepare quarterly reports and other deliverables to the Department; and
8. Prepare a draft and a final project report.

COST: \$44,440

FUNDING: \$34,375 by the U.S. Environmental Protection Agency
\$10,065 by the Town of Concord

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-05/WCG**

PROJECT TITLE: Norfolk Water Conservation Grant Project

INVESTIGATOR: Town of Norfolk

LOCATION: Charles River Basin

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Norfolk (“the Grantee”) drinking water works and distribution system. The Grantee’s goal is to continue their water loss reduction efforts and thus remain in compliance with their Water Management Act standards of 65 rgpcd (residential gallons per capita day) and reduce their unaccounted for water percentage (UAW) to 10% or less from the current UAW of 11.9%.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss).
2. Conduct a comprehensive leak detection survey for 57 miles of water mains and appurtenances of the water distribution system.
3. Repair leaks in accordance with the terms of the Grantee’s current Water Management Act Permit.
4. Implement a water conservation plan to reduce the volume of water lost in the system by increasing community awareness and implementing water saving practices throughout the Town.
5. Evaluate up to 50 existing service meters over 10 years old to evaluate maintenance calibration and reading practices. The results will be used for calibration and to determine if the venturis require servicing.
6. Implement a meter replacement program and replace all 5/8” customer service water meters greater than 15 years old. Document the inspection and decision making processes, and summarize the requisite savings from accurate meters.
7. Prepare quarterly reports and other deliverables to the Department; and
8. Prepare a draft and a final project report.

COST: \$49,500

FUNDING: \$37,125 by the U.S. Environmental Protection Agency
\$12,375 by the Town of Norfolk

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-06/WCG**

PROJECT TITLE: Middleborough Water Conservation Grant Project

INVESTIGATOR: Town of Middleborough

LOCATION: Taunton River Basin

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Middleborough ("the Grantee") drinking water works and distribution system. The Grantee's goal is reduce their unaccounted for water loss to 10 percent or less, and reduce their summer to winter water usage ratio (it was 1.43 in 2006).

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss).
2. Conduct a comprehensive leak detection survey for 126 miles of water mains and appurtenances of the water distribution system.
3. Repair leaks in accordance with the terms of the Grantee's current Water Management Act Permit requirements.
4. Implement a water conservation and demand management education program for purposes of educating consumers about water conservation and demand management.
5. Prepare quarterly reports and other deliverables to the Department; and
6. Prepare a draft and a final project report.

COST: \$49,180

FUNDING: \$32,380 by the U.S. Environmental Protection Agency
\$16,800 by the Town of Middleborough

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-07/WCG**

PROJECT TITLE: Haverhill Water Conservation Grant Project

INVESTIGATOR: City of Haverhill

LOCATION: Merrimack River Basin

DESCRIPTION: The project will promote water conservation, and identify and reduce unaccounted for water loss from the City of Haverhill (“the Grantee”) drinking water works and distribution system. The Grantee’s goal is to reduce their unaccounted for water loss to 10 percent or less, and reduce their residential gallons per capita day (rgpcd) to 65 rgpcd (it was about 80 rgpcd in 2006).

Specific tasks include:

1. Implement water conservation education. Purchase and distribute water conservation-related materials to encourage water conservation and to promoted public awareness of the long-term economic and environmental benefits of water conservation. Encourage the students and their families to look at the way that they use water and look for ways to reduce their consumption.
2. Conduct a comprehensive leak detection survey for 210 miles of water mains and appurtenances of the water distribution system.
3. Repair leaks in accordance the Grantee’s current Water Management Act Permit requirements.
4. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss).
5. Prepare quarterly reports and other deliverables to the Department; and
6. Prepare a draft and a final project report.

COST: \$49,200

FUNDING: \$36,000 by the U.S. Environmental Protection Agency
\$13,200 by the City of Haverhill

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-08/WCG**

PROJECT TITLE: Holden Water Conservation Grant Project

INVESTIGATOR: Town of Holden

LOCATION: Nashua River Basin

DESCRIPTION: The goals of this project are to identify and reduce unaccounted for water loss from the Town of Holden (“the Grantee”) drinking water works and distribution system. The Grantee’s unaccounted for water loss has ranged from 5% to 29% over the past four years. The Grantee’s goal is to continue their water loss reduction efforts and reduce their unaccounted for water loss to 10 percent or less.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss). Use the MassDEP guidance available through the Water Management Act Program – *Water Management Act Program Guidance Document for a Water Audit and Leak Detection Survey*.
2. Prepare quarterly reports and other deliverables to the Department; and
3. Prepare a draft and a final project report.

COST: \$24,600

FUNDING: \$18,450 by the U.S. Environmental Protection Agency
\$6,150 by the Town of Holden

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-09/WCG**

PROJECT TITLE: Sharon Water Conservation Grant Project

INVESTIGATOR: Town of Sharon

LOCATION: Taunton and Boston Harbor River Basins

DESCRIPTION: The goals of this project are to expand the Town of Sharon's existing water conservation program through outreach, education, and social marketing. Grantee's goal is to remain in compliance with their Water Management Act standards of 65 rgpcd and achieve an unaccounted for water percentage of 10% or less.

Specific tasks include:

1. Implement a water conservation education and outreach program to increase community awareness and support water saving practices.
2. Deliver water conservation curriculum to be utilized in the Sharon Schools based on the adaptation of existing models and reflecting the MCAS Science and Technology Standards.
3. Conduct outreach to civic, neighborhood, and youth groups and to help engage a wider circle of their members and personal contacts.
4. Conduct outreach to private vendors who can influence consumer water use. Target groups include plumbers, septic haulers, irrigation contractors, and nurseries.
5. Purchase and install six ultra low-flow toilets on municipal property that can be utilized as demonstration sites for water saving retrofits.
6. Post information on water conservation on the Town of Sharon's website. Publish prepare a monthly newspaper column on water resource issues and conservation.
7. Develop a program of technical performance standards for irrigation systems. Explore mechanisms to require compliance with the performance standards for new systems in conjunction with the current practice of inspecting new systems for required backflow prevention. This task is presented as a match.
8. Prepare quarterly reports and other deliverables to the Department; and
9. Prepare a draft and a final project report.

COST: \$68,299

FUNDING: \$44,000 by the U.S. Environmental Protection Agency
\$24,299 by the Town of Sharon

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-10/WCG**

PROJECT TITLE: Department of Correction Water Conservation Grant Project

INVESTIGATOR: Massachusetts Department of Correction

LOCATION: Charles, Nashua, South Coastal, and Taunton Basins

DESCRIPTION: The goal of this project is to identify and reduce unaccounted for water loss from the Massachusetts Department of Correction drinking water systems that serve MCI-Bridgewater, MCI-Norfolk, MCI-Shirley, and MCI-Plymouth.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss).
2. Conduct a comprehensive leak detection survey for 22 miles of water mains and appurtenances of the water distribution system.
3. Repair leaks in accordance with their prioritized status.
4. Retrofit approximately 15 priority fixtures, rated at 2.0 gallons per minute or less, in 3 bathrooms at the Shirley complex. These fixtures were prioritized due to their location and usage. Calculate the savings from the fixture replacement in gallons per year and approximate dollar value. This task is presented as part of the Grantee's match.
5. Purchase and distribute water conservation-related materials to encourage water conservation and to promote public awareness of long-term economics and environmental benefits of water conservation.
6. Prepare quarterly reports and other deliverables to the Department; and
7. Prepare a draft and a final project report.

COST: \$31,400

FUNDING: \$23,600 by the U.S. Environmental Protection Agency
\$7,800 by the Massachusetts Department of Correction

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-11/WCG**

PROJECT TITLE: Pembroke Water Conservation Grant Project

INVESTIGATOR: Town of Pembroke

LOCATION: South Coastal Basin

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Pembroke (“the Grantee”) drinking water system, is to continue their water loss reduction efforts, and reduce unaccounted for water loss from 17% to 10% or less.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss).
2. Purchase leak detection equipment - leak correlator and leak detection loggers - to be shared with the Town of Hanover and the Abington & Rockland Joint Water Works. Train appropriate staff on proper use of newly purchased leak detection equipment.
3. Conduct a comprehensive leak detection survey for 120 miles of water mains and appurtenances of the water distribution system.
4. Repair leaks in accordance with the terms of the Grantee’s current Water Management Act Permit.
5. Replace the raw water meter at Town Well #4. This will allow the Grantee to accurately record the volume of water pumped from Well #4 and determine by subtraction, the volume pumped from Well #5. This task is presented as part of the Grantee’s match.
6. Prepare quarterly reports and other deliverables to the Department; and
7. Prepare a draft and a final project report.

COST: \$45,100

FUNDING: \$20,000 by the U.S. Environmental Protection Agency
\$25,100 by the Town of Pembroke

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-12/WCG**

PROJECT TITLE: Danvers Water Conservation Grant Project

INVESTIGATOR: Town of Danvers

LOCATION: Ipswich River Basin

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Danvers (“the Grantee”) drinking water system, to continue their conservation efforts and thus remain in compliance with their Water Management Act standards.

Specific tasks include:

1. Purchase and distribute water conservation-related materials to encourage water conservation and to promote public awareness of long-term economics and environmental benefits of water conservation. The goal of this task is to reduce the volume of water lost in the system by increasing community awareness and implementing water saving practices throughout the Town.
2. Provide reimbursement for properly documented purchase and installation of the purchase and installation of low flow toilets purchased from the effective date of the Grantee’s official Notice to Proceed letter to March 15, 2009. Only toilets meeting the Uniform North American Requirements (UNAR) for toilet performance are eligible for rebates. The Grantee will confirm the installation of the each device.
3. Provide rebates to 100 eligible water customers for installing Consortium of Energy Efficiency (CEE) approved clothes washers (*with a Water Efficiency rating of 7.5 or less*) purchased from the effective date of the Grantee’s official Notice to Proceed letter to March 15, 2009.
4. Prepare quarterly reports and other deliverables to the Department; and
5. Prepare a draft and a final project report.

COST: \$37,500

FUNDING: \$30,000 by the U.S. Environmental Protection Agency
\$7,500 by the Town of Danvers

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-13/WCG**

PROJECT TITLE: New Bedford Water Conservation Grant Project

INVESTIGATOR: City of New Bedford

LOCATION: Taunton River Basin

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the City of New Bedford ("the Grantee") drinking water works and distribution system. The Grantee's goal is to continue their water loss reduction efforts and reduce their unaccounted for water loss from approximately 12.6% to 10 percent or less.

Specific tasks include:

1. Purchase two portable residential water meter-testing kits. Implement a residential meter-testing program; begin testing meters with the oldest meters and test up to 200 water meters during the courser of the project. Train appropriate staff on proper use of newly purchased leak detection equipment.
2. Conduct a comprehensive leak detection survey for 286 miles of water mains and appurtenances of the water distribution system.
3. Repair leaks in accordance with the terms of the Grantee's current Water Management Act Permit.
4. Purchase, distribute, and confirm the installation of up to 500 new indoor water conservation kits. Summarize the requisite savings as the result of water conservation kits.
5. Prepare quarterly reports and other deliverables to the Department; and
6. Prepare a draft and a final project report.

COST: \$55,460

FUNDING: \$43,298 by the U.S. Environmental Protection Agency
\$12,162 by the City of New Bedford

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-14/WCG**

PROJECT TITLE: West Boylston Water Conservation Grant Project

INVESTIGATOR: West Boylston Water District

LOCATION: Nashua River Basin

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the West Boylston Water District (“the Grantee”) drinking water system. The Grantee’s goal is to continue their water loss reduction efforts and remain in compliance with Water Management Act standards of 65 residential gallons per capita day and an unaccounted for water percentage of 10% or less.

Specific tasks include:

1. Purchase leak detection equipment; leak correlator and leak detection loggers - to be shared with the Towns of Sterling and Boylston. Training to include staff from the Towns of Halifax and East Bridgewater.
2. Conduct a comprehensive leak detection survey for 53 miles of water mains and appurtenances of the water distribution system.
3. Repair leaks in accordance with their prioritized status: Leaks of 3 gallons per minute or more shall be repaired as soon as possible and no later than within twelve months of detection. Leaks of less than 3 gpm at hydrants and appurtenances shall be repaired promptly and no later than within twelve months of detection. Leaks of less than 3 gpm in local roadways, freeway, arterial, or collector roadways shall be repaired when related work on the roadway is being performed.
4. Purchase and install up to 480 new service meters. Meter evaluation, testing, replacement, repair, or calibration work conducted as match must include documentation to support this match. Describe the inspection and decision making process, and summarize the requisite savings from accurate meters.
5. Prepare quarterly reports and other deliverables to the Department; and
6. Prepare a draft and a final project report.

COST: \$49,000

FUNDING: \$39,000 by the U.S. Environmental Protection Agency
\$10,000 by the West Boylston Water District

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-15/WCG**

PROJECT TITLE: Lexington Water Conservation Grant Project

INVESTIGATOR: Town of Lexington

LOCATION: SuAsCo River Basin

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Lexington drinking water system, to continue water loss reduction efforts, and reduce usage among the targeted market of consumers by 5%. The Grantee's source of supply is from the Massachusetts Water Resources Authority.

Specific tasks include:

1. Water Conservation Public Outreach Program. Increase community awareness about the importance of water conservation and measures that can be taken to reduce water consumption. Encourage water and promote public awareness of the economic and environmental benefits of conservation through a community wide social marketing campaign.
2. Conduct a comprehensive leak detection survey for 154 miles of water mains and appurtenances of the water distribution system.
3. Repair leaks in accordance with their prioritized status: Leaks of 3 gallons per minute or more shall be repaired as soon as possible and no later than within twelve months of detection. Leaks of less than 3 gpm at hydrants and appurtenances shall be repaired promptly and no later than within twelve months. Leaks of less than 3 gpm in local roadways, freeway, arterial, or collector roadways shall be repaired when related work on the roadway is being performed.
4. Test and evaluate the venturi in-line water meters for water sold to the Town of Bedford. Estimate any water losses associated with erroneous metered data. Meter evaluation, testing, replacement, repair, or calibration work conducted as match must include documentation to support this match. Describe the inspection and decision making process, and summarize the requisite savings from accurate meters.
5. Prepare quarterly reports and other deliverables to the Department; and
6. Prepare a draft and a final project report.

COST: \$32,500

FUNDING: \$22,500 by the U.S. Environmental Protection Agency

DURATION: \$10,000 by the Town of Lexington
2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-16/WCG**

PROJECT TITLE: Hopedale Water Conservation Grant Project

INVESTIGATOR: Town of Hopedale

LOCATION: Blackstone and Charles River Basins

DESCRIPTION: The goals of this project are to promote water conservation, and identify and reduce unaccounted for water loss from the Town of Hopedale (“the Grantee”) drinking water works and distribution system. The Grantee’s goal is to continue their water loss reduction efforts and remain in compliance with their Water Management Act standards of 65 rgpcd and unaccounted for water percentage of 10% or less.

Specific tasks include:

1. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss).
2. Purchase and distribute water conservation-related materials to encourage conservation and to promote public awareness of the long-term economics and environmental benefits of water conservation.
3. Purchase and install a minimum of two new low-flow toilets; one in the Town Hall and the other in the Highway Department building; prioritized due to their location and high usage. At each installation site affix a small descriptive sign or plaque to educate and promote the use of such water savings devices.
4. Purchase and distribute up to 500 low-flow retrofit kits. Document the number and type of kits distributed, and summarize the water savings, as appropriate.
5. Purchase and install up to 100 replacement service meters. Meter evaluation, testing, replacement, repair, or calibration work conducted as match must include documentation to support this match. Describe the inspection and decision making process, and summarize the requisite savings from accurate meters.
6. Prepare quarterly reports and other deliverables to the Department; and
7. Prepare a draft and a final project report.

COST: \$40,500

FUNDING: \$28,000 by the U.S. Environmental Protection Agency
\$12,500 by the Town of Hopedale

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-17/WCG**

PROJECT TITLE: Freetown Water Conservation Grant Project

INVESTIGATOR: Town of Freetown

LOCATION: Taunton River Basin

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Freetown drinking water system, to continue their water loss reduction efforts, and thus remain in compliance with their Water Management Act standards of 65 rgpcd and an unaccounted for water percentage (UAW) of 10% or less.

Specific tasks include:

1. Encourage water conservation and promote public awareness of the long-term economic and environmental benefits of water conservation through a community wide social marketing campaign. This will be conducted through the distribution of newsletter and bulletin. Customers will be asked to return a Household Audit Checklist showing steps they have taken to conserve water.
2. Conduct a school-based water conservation education initiative aimed at enhancing student involvement regarding water conservation. Elementary students will produce posters focusing on the need to provide, protect, and preserve today's water supplies for tomorrow's consumers. Introduce water conservation techniques and provide educational materials for the students and their families.
3. Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss).
4. Conduct a comprehensive leak detection survey for 16 miles of water mains and appurtenances of the water distribution system.
5. Repair leaks in accordance with their prioritized status.
6. Conduct a water meter inventory. The inventory will be used to target and enhance future meter replacement programs.
7. Prepare quarterly reports and other deliverables to the Department; and
8. Prepare a draft and a final project report.

COST: \$45,000

FUNDING: \$35,000 by the U.S. Environmental Protection Agency
\$10,000 by the Town of Freetown

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-18/WCG**

PROJECT TITLE: Shrewsbury Water Conservation Grant Project

INVESTIGATOR: Town of Shrewsbury

LOCATION: Blackstone and SuAsCo River Basins

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce water loss from the Town of Shrewsbury drinking water works and distribution system. The Grantee's goal is to remain in compliance with their Water Management Act standards of 65 residential gallons per capita day and an unaccounted for water percentage of 10% or less.

Specific tasks include:

1. Print and distribute a water conservation newsletter quarterly and distribute a water conservation newsletter to each water customer in the Town of Shrewsbury. The goal of the water conservation plan is to reduce the volume of water lost in the system by increasing community awareness and implementing water saving practices.
2. Present approximately fourteen water conservation-based theatrical presentations in approximately seven local elementary schools and provide information to the students on how they can reduce their water use. Purchase and distribute 2,500 brochures. The curriculum will be focused on the water cycle and the effects of human activities on the cycle and water resources, and simple water conservation techniques.
3. Purchase and distribute up to a total 1,700 water conservation related brochures, and other educational and promotional items. Document the number and type of materials distributed. Provide educational materials, references, and links to related websites.
4. Purchase, distribute, and confirm the installation of up to 250 low-flow WaterSense labeled faucets (rated at 1.5 gallons per minute). Document their installation and quantify the water loss reduction.
5. Prepare quarterly reports and other deliverables to the Department; and
6. Prepare a draft and a final project report.

COST: \$30,674

FUNDING: \$23,069 by the U.S. Environmental Protection Agency
\$7,605 by the Town of Shrewsbury

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-19/WCG**

PROJECT TITLE: Bridgewater Water Conservation Grant Project

INVESTIGATOR: Town of Bridgewater

LOCATION: Taunton River Basin

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Bridgewater drinking water system. The Grantee's goal is to continue their water loss reduction efforts and remain in compliance with their Water Management Act standards of 65 rgpcd and an unaccounted for water percentage (UAW) of 10% or less.

Specific tasks include:

1. Purchase and install a total of seventeen water conserving toilets (1.28 gallons per flush), 1 waterless urinal, and 8 automatic sinks (with a maximum rate of 2.0 gallons per minute). These fixtures will be placed in the Grantee's Academy Building, Town Hall, Selectmen's Building, Sewage Treatment Plant Administration Building, and the Fire Station. Document the make, model, type, and number of fixtures replaced, and quantify the water savings. Affix a small sign at each location to promote the use of such devices.
2. Implement a water conservation education and outreach program. The goal of the water conservation plan is to reduce the volume of water lost in the system by increasing community awareness and implementing water saving practices throughout the Town. Conservation efforts can include water use reduction plans, working with public schools, and distributing conservation outreach and education information and Low Impact Development concepts to agricultural, commercial, industrial, and residential consumers.
3. Prepare quarterly reports and other deliverables to the Department; and
4. Prepare a draft and a final project report.

COST: \$23,750

FUNDING: \$19,000 by the U.S. Environmental Protection Agency
\$4,750 by the Town of Bridgewater

DURATION: 2008-2009

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER CONSERVATION GRANT PROJECT 07-20/WCG**

PROJECT TITLE: Pepperell Water Conservation Grant Project

INVESTIGATOR: Town of Pepperell

LOCATION: Nashua River Basin

DESCRIPTION: The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Pepperell drinking water works and distribution system. The Grantee's goal is to continue their water loss reduction efforts and thus remain in compliance with their Water Management Act standards of 65 rgpcd and an unaccounted for water percentage (UAW) of 10% or less.

Specific tasks include:

1. Purchase and install a minimum of seventy-five low-flow plumbing fixtures in a total of fifteen public buildings as per the Grantee's proposal of July 18, 2007. Document the make, model, type, and number of particular fixtures replaced. Quantify the savings as the result of the new fixtures. At the location of each low-flow fixtures installation, affix a small sign or plaque to educate and promote the use of such water savings devices.
2. Prepare quarterly reports and other deliverables to the Department; and
3. Prepare a draft and a final project report.

COST: \$24,000

FUNDING: \$18,000 by the U.S. Environmental Protection Agency
\$6,000 by the Town of Pepperell

DURATION: 2008-2009